On the Use of 'Genetically Modified Food Plants' To Combat Hunger in the World

Statement by the Pontifical Academy of Sciences

The Challenge

1. The rapid growth of the world population requires the development of new technologies to feed people adequately; even now, an eighth of the world's people go to bed hungry. The genetic modification of food plants can help meet part of this challenge.

2. Agriculture as it is currently practiced is unsustainable, as is indicated by the massive losses of topsoil and agricultural land that have occurred over the past few decades, as well as by the unacceptable consequences of massive applications of pesticides and herbicides throughout most of the world. Techniques to genetically modify crop plants can make important contributions to the solution of this common problem.

The Potential of Genetically Modified Food Plants

3. Virtually, all food plants have been genetically modified in the past; such a modification is, therefore, a very common procedure.

4. The cellular machinery of all living organisms is similar, and the mixing of genetic material from different sources within one organism has been an important part of the evolutionary process.

5. In recent years, a new technology has been developed for making more precise and specific improvements in strains of agricultural plants, involving small, site-directed alterations in the genome sequence or sometimes the transfer of specific genes from one organism to another.

6. Genetically modified food plants can play an important role in improving nutrition and agricultural products, especially in the developing world.

Conditions for the Beneficial Use of this New Technology

7. The scientific community should be responsible for the scientific and technological research leading to the advances described above, but it must also monitor the way it is applied and ensure that it works to the effective benefit of people.

8. There is nothing intrinsic about genetic modification that would cause food products to be unsafe. Nevertheless, science and scientists are - and should further be – employed to test the new strains of plants to determine whether they are safe for people and the environment.

9. The method used for testing the safety of new genetically modified strains of plants should be publicly available, as should the results of these tests, in both the private and public sectors.

10. Governments should have the responsibility for ensuring that the tests and their results are conducted in line with the highest criteria of validity. The protocols of evaluation should be made widely accessible.

11. Governments should increase their funding for public research in agriculture in order to facilitate the development of sustainable and productive agricultural systems available to everyone.

12. Intellectual property rights should not inhibit a wide access to beneficial applications of scientific knowledge. In the development of this modern genetic technology for agriculture, efforts should be made to facilitate cooperation between the public and private sectors and to secure the promotion of solidarity between the industrialised and developing worlds.

13. Special efforts should be made to provide poor farmers in the developing world with access to improved crop plants and to encourage and finance research in developing countries. At the same time, means should be found to create incentives for the production of vegetable strains suitable to the needs of developing countries.

14. Research to develop such improvements should pay particular attention to local needs and to the capacity of each country to engage in a necessary adaptation of its traditions, social heritage, and administrative practices in order to achieve the success of the introduction of genetically modified food plants.

Recommendation for the Scientific Community

15. In order to help governments, state-funded researchers, and private companies to meet the above conditions, and in order to facilitate the development of common standards and approaches to this problem in both developing and industrialised countries, the scientific community, represented by its established worldwide umbrella organisations, should offer its expertise. A suitably composed international scientific advisory committee could be entrusted with this all-important task.

(8 May 2001)